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ABSTRACT

The Computers in Bilingual Education program at South Bronx High School (New York) completed its first year of operation in June, 1985. The program offered limited English speaking students computer-assisted instruction in English as a Second Language (ESL), native language arts, social studies, math, and science, and also provided instruction in computer literacy. All students were Spanish-speaking, and most were recent immigrants. Despite setbacks in program implementation due to personnel turnover and problems in purchasing computer hardware and software, the program made progress toward achieving its objectives. Students who participated in the program received seven periods of academic instruction in ESL, native language arts, and bilingual content areas that paralleled the mainstream curriculum. Proposed objectives for student achievement in these areas were met fully only in English language courses. Efforts were made to integrate computer-assisted instruction within the academic program, principally within the ESL classes and the math lab. Although the program had problems getting parents to attend meetings, parents did visit the school regularly on an individual basis. Despite setbacks, the program provided students with some exposure to computer use while maintaining a stable, coherent, and consistent academic program. (KH)

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SOUTH BRONX HIGH SCHOOL

COMPUTERS IN BILINGUAL EDUCATION

1984-1985

OEA Evaluation Report

O.E.A. Evaluation Section Report

Robert Tobias, Administrator of Evaluation
Judith Stern Torres, Senior Manager

Grant Number: G00-824-5060

SOUTH BRONX HIGH SCHOOL

COMPUTERS IN BILINGUAL EDUCATION

1984-1985

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Joseph De Jesus

A.P. Supervision:
Euclid Mejia

Project Director:
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A SUMMARY OF THE REPORT

The Computers in Bilingual Education (CIBE) program completed its first year of funding in June 1985 at South Bronx High School. Its primary goal was to offer limited English-proficient (LEP) students computer-assisted instruction in English as a second language (E.S.L.), native language arts, social studies, math, and science, and to provide instruction in computer literacy. The program served 219 low-income Spanish-speaking students in the ninth, tenth, and eleventh grades. The majority of students were recent immigrants from Puerto Rico and Latin America. The students varied in English language proficiency, ability in their native language, and overall academic preparedness.

Direct instruction was supported by a variety of sources, including tax levy, Chapter I, Pupils with Special Educational Needs (P.S.E.N.), and Modular 5B funds. Throughout the year, the assistant principal (A.P.) for supervision and the project director, with outside Chapter I staff, regularly observed classes, and held individual conferences with teachers, and gave demonstration lessons to develop and support staff.

Title VII funds were allocated to support computer-assisted instruction in the content areas, as well as instruction in computer literacy. Implementation of the program was hampered by changes in personnel (project director, resource teacher, E.S.L. teachers), which limited the number of computer instructional units developed in each academic area, and by problems in purchasing hardware and software, which limited the amount of equipment and resources available for computer-assisted instruction.

The project director visited each E.S.L. class twice in the spring and used available PET Commodore computers to teach lessons. All students in the program, working two per terminal, were able to complete one practice lesson in E.S.L. by the end of the term. Students were also exposed to the computer in the math lab.

Five complete units of IBM PC terminals and printers were expected in late May 1985. The units will be placed on rollers and made available in bilingual classes in the fall. The terminals will circulate between classes as needed. In addition, a full computer lab (currently under construction), with four rooms of IBM PCs, will be available for classroomwide instruction.

Plans are in place for program staff (the A.P., the project director, two teachers, and office aide) to work during the summer of 1985 on evaluating software and translating materials, as well as on adapting curricular materials for classroom use. Instructional software guides will be created for teachers. In addition, the current mainstream curriculum for computer literacy will also be translated. The bilingual computer literacy course will be taught in fall, 1985 as a math elective.

Program staff, A.P., and principal initiated outreach efforts to get more parents involved in the program.

Program implementation was strongly influenced by the overall organization and size of the school. The bilingual program, strongly supported by the principal and centralized under the A.P. for supervision, paralleled the mainstream curriculum. School, project, and bilingual staff communicated frequently and worked together to meet program objectives.

Students were assessed in English language development (Criterion Referenced English Syntax Test); in growth in their mastery of the native language (teacher-made examinations); and in mathematics, science, and social studies (teacher-made examinations). Quantitative analysis of student achievement data indicates that:

-- Program students mastered 1.7 objectives per month on CREST Levels 1 and 2 in the fall, and 1.6 objectives per month in the spring. Level 3 students mastered 0.8 objectives per month in the fall and in the spring. The proposed objectives in this area were met.

-- The 70 percent passing criteria in E.S.L., E.S.L. reading, and native language arts were met for native language arts in both semesters, and for E.S.L. reading in the spring semester. Although, overall, there was an increase in achievement from fall to spring in all areas, the proposed objectives were only partially met.

-- Program students' passing rates in math (fall and spring) and science (spring) were not significantly different from mainstream passing rates, but were significantly lower in science (fall) and social studies (fall and spring). Thus the program objective was partially met.

The following recommendations are aimed at improving the overall effectiveness of the program:

-- In an effort to increase parent participation, the school might survey parents to discuss what specifically keeps them away, as well as what would bring them to school meetings and activities.

-- The program would minimize delays in printing materials, such as the parent newsletter, if it used the IBM PC.

-- A list of program-developed curricular materials in E.S.L., social studies, Spanish, math, and science should be shared with other schools that serve similar student populations.

-- Given student interest in a club, the grade advisor (who showed interest in developing greater student involvement in Hispanic cultural traditions) may want to help organize a student organization focused on relevant social/cultural activities.

ACKNOWLEDGEMENTS

The production of this report, as of all O.E.A. Bilingual Education Evaluation Unit reports, is the result of a cooperative effort of regular staff and consultants. In addition to those whose names appear on the cover, Eulalia Cabrera has interpreted findings, integrated material into reports, and has written report summaries. Patricia Fitzpatrick has spent many hours creating, correcting, and maintaining data files. Finally, Joseph Rivera has worked intensively to produce, correct, duplicate, and disseminate reports. Without their able and faithful participation, the unit could not have handled such a large volume of work and still produced high-quality evaluation reports.

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Computers in Bilingual Education
South Bronx High School

Location:	701 St. Ann's Avenue Bronx, New York 10455
Year of Operation:	1984-85, First year of Title VII Funding
Target Languages:	English and Spanish
Number of Participants:	219 students of limited English proficiency
Principal:	Joseph De Jesus
Assistant Principal for Supervision:	Euclid Mejia
Project Director:	Sheila Fallick

I. INTRODUCTION

South Bronx High School is an academic-comprehensive high school located in one of the most economically depressed areas of New York City, the South Bronx. With a total enrollment of 1,150 students drawn mainly from the surrounding community, it is a small school. Seventy-eight percent of the student population is of Hispanic origin.

Since its inception as a bilingual high school in 1977, South Bronx High School has had a bilingual program in place. It has also had a history of Title VII-funded projects. Between September 1978 and August 1982, these have included the Basic Skills Bilingual Program, followed by the Career Awareness/Survival Skills Project during 1982-84. In this first year of funding, the CIBE (Computers in Bilingual Education) Project builds on the basic skills and life skills curricula developed in these previous programs.

This year Project CIBE served 219 ninth, tenth, and eleventh graders of limited English proficiency (LEP), making maximum use of several funding sources: local tax levy, Chapter I, state funds for Pupils with Special Educational Needs (P.S.E.N.), and Title VII. Instruction in English as a second language (E.S.L.), native language arts (Spanish), social studies, mathematics, and science was offered with non-Title VII funds. Title VII funds were specifically directed towards offering LEP students computer-assisted instruction in these areas, as well as instruction in computer literacy.

Throughout 1984-85, the program, coordinated by a project director under the assistant principal (A.P.) for supervision (of mathematics, science, foreign languages, E.S.L., and bilingual education), experienced several changes in personnel. In January, the project director resigned to assume a position as a hearing officer at the central headquarters of the New York City Board of Education. The former bilingual grade advisor, an E.S.L. curriculum specialist and educator for 20 years, assumed the position of project director in late February. Also, the bilingual resource teacher had to return to the classroom in February 1985 due to a shortage of bilingual math teachers in the school. A new bilingual resource teacher was hired in April 1985. Shortly thereafter, however, she was put in the classroom to replace an E.S.L. teacher on maternity leave. Another E.S.L. teacher transferred out of the school in January 1985 and was also replaced by a new teacher not licensed in E.S.L. This left the program in search of two licensed E.S.L. teachers. These two positions are expected to be filled in September. More detailed staff characteristics are included as Appendix A.

Title VII staff includes: the project director, one bilingual resource teacher (rather than the two originally proposed [a bilingual and an E.S.L. resource teacher]), one office aide, and two paraprofessionals. Other program staff supported by tax-levy funds include: one assistant principal of supervision, a bilingual dean, and a bilingual grade advisor. The program's 14 E.S.L., native language arts, and bilingual content-area teachers serve students in the classroom. The instructional staff is supported by a combination of tax-levy, Module 5B, and Chapter I funds.

Program implementation is strongly influenced by the overall organization and size of the school. The principal is a strong supporter of bilingual education, with years of experience in the field. The bilingual program, centralized under the A.P., parallels the mainstream curriculum within the school. The A.P., the project director, and the bilingual staff communicate frequently and work together to meet program objectives. In addition, the small size of the school allows for more personal contact and follow-up between staff and students.

II. STUDENT CHARACTERISTICS

Project CIBE served 219 ninth, tenth, and eleventh graders of limited English proficiency (LEP) who were of Hispanic descent. The majority of the students came from feeder junior high, intermediate, and non-public schools in the area. Others, for whom South Bronx High School was their first English language school, were admitted as port-of-entry students. In addition, some of the students included current South Bronx High School students. Title VII funds were used to serve primarily those students who had never been served under the Act.

All students served were members of low-income families eligible for the New York City Board of Education's free-lunch program. The majority were also recent immigrants from Puerto Rico and other Latin American countries. (See Table 1.)

New students were tested and placed by means of the Language Assessment Battery (LAB) which measures English and Spanish proficiency in listening, speaking, reading, and writing. Hispanic students who scored at or below the twentieth percentile on the English LAB and higher on the Spanish LAB were considered LEP and eligible for the program. In addition, students were tested in Spanish with the Interamerican Series, La Prueba de Lectura to determine their native language reading level.

Whether they were recent arrivals or were born in the U.S., students had not achieved English proficiency prior to entering the program. According to the project director, the educational background of these students varied widely. While some had been well educated in their native

countries, others had minimal experience in school settings. She maintained that students from Latin America tended to be better educated and literate in Spanish. Tables 2 and 3 present the program students by sex and grade and by age and grade, respectively.

Most of the students entered the program in September; 17 students (eight percent) entered at various times during the school year (see Table 4). However, because of continual family mobility to and from the country of origin or within the United States, some students experienced an interruption in their schooling and approximately 10 percent left the program altogether (see Table 5). According to the project director, those who stay in the bilingual program excel and some graduate at the top of their class. Several of the high school's valedictorians, for example, have come from the bilingual program.

TABLE 1

Number and Percent of Program Students by Country of Birth

Country of Birth	Number	Percent
Puerto Rico	99	45
United States	41	19
Central and South America (country unspecified)	29	13
Dominican Republic	28	13
Honduras	20	9
Cuba	1	less than 1
Unknown	1	less than 1
TOTAL	219	100

- Forty-five percent of the students were born in Puerto Rico.
- Nineteen percent were born in the United States.
- Thirteen percent are from the Dominican Republic.

TABLE 2

Number and Percent of Program Students by Sex and Grade

	Male		Female		Total	
Grade	Number	Percent of Grade	Number	Percent of Grade	Number	Percent of All Students
9	54	42	74	58	128	59
10	13	35	24	65	37	17
11	14	33	28	67	42	19
12	2	18	9	89	11	5
TOTAL	83	38[a]	135	62[a]	218	100

[a]Percent of program students.

- Female students outnumber males in every grade.
- Student numbers decline by grade twelve: only five percent of program students are in this grade.

TABLE 3

Number of Program Students by Age and Grade

Age	Grade 9	Grade 10	Grade 11	Grade 12	Total
14		0	0	0	12
15			0	0	41
16	41			0	57
17	34	16			66
18	6	5	10		23
19	1	1	5	5	12
20	0	0	2	0	2
21	0	0	1	2	3
22	0	0	0	1	1
TOTAL	128	37	41	11	217
Overage Students					
Number	82	22	18	8	122
Percent	64	59	43	72	56

Note. Shaded boxes indicate expected age range for grade.

- Fifty-three percent of the program students are overage for their grade.
- The highest percentage of overage students is in grade twelve (72 percent); however the number of students in this grade is very small.

TABLE 4

Time Spent in the Bilingual Program[a]

(As of June 1985)

Time Spent in Bilingual Program	Number of Students Grade 9	Grade 10	Grade 11	Grade 12	Total
<1 Academic Year	11	1	5	0	17
1 Academic Year	116	37	37	11	201
TOTAL	127	38	42	11	218

[a]Rounded to the nearest year.

- Two hundred one students (92 percent) have been in the program for one year.
- Seventeen students entered the program at various times during the academic year.

TABLE 5

Number of Students Leaving the Program

Reason For Leaving	Grade 9	Grade 10	Total
Fully mainstreamed	2	0	2
Transferred to another school	5	1	6
Returned to native country	4	3	7
Dropped out (Marriage)	2	0	2
Dropped out (Reason Unknown)	1	2	3
TOTAL	14	6	20

- The majority of students leaving the program were ninth graders.
- Two ninth graders left the program to enter mainstream classes.

III. FINDINGS

The evaluation findings for the 1984-85 academic year include both objectives measurable by standardized test results and those based on examination of program materials and records, site visits, interviews with school personnel, and a questionnaire. In the following section the findings are presented by objective as proposed to and accepted by the Office of Bilingual Education and Minority Languages Affairs, U.S. Department of Education.

ENGLISH AS A SECOND LANGUAGE

-- As a result of participating in the program, students in E.S.L. 1 and E.S.L. 2 will master an average of one objective per twenty days of instruction on the beginning level of the Criterion Referenced English Syntax Test (CREST).

-- As a result of participating in the program, students in E.S.L. 3 and E.S.L. 4 will master an average of one objective per twenty days of instruction on the intermediate level of the CREST.

-- As a result of participating in the program, students in E.S.L. 5 and LED will master an average of 0.8 objectives per twenty days of instruction on the advanced level of the CREST.

Students were provided with intensive E.S.L. instruction for two to three periods each day. E.S.L. instruction focused on the development of the four basic language skills (listening, speaking, reading, and writing). Appendix B outlines E.S.L. instruction for the fall and spring semesters.

Students were taught English grammar, vocabulary, idiomatic usage, as well as survival skills required for daily living. Reading and writing skills were also developed to prepare students for the Regents Competency and citywide examinations. According to the project director,

bilingual students are often better prepared for these tests in English than native speakers because they receive more extensive instruction in the structure of the language than mainstream students.

Classes were conducted by teachers funded by Chapter I, by P.S.E.N., or by basic tax levy, with the assistance of four paraprofessionals, two of whom were funded by Chapter I.

According to the project director, the E.S.L. teachers used a similar instructional approach to their classes and thus provided general consistency in the amount of English used in each level. The teachers all followed the New York State curriculum for E.S.L. instruction at the high school level.

For the first time in the history of the program, three members of the E.S.L. staff taught out of license. However, the project director, in conjunction with Chapter I staff development specialists, assisted the A.P. with classroom observations, with holding individual conferences with teachers, and with giving demonstration lessons to develop and support staff throughout the year.

A member of the evaluation team visited two E.S.L. classes -- E.S.L. 2 and transitional E.S.L. The E.S.L. 2 classes had nine students in attendance out of the sixteen enrolled. This was the second semester of these students' first course in English. The lesson observed was the use of irregular verbs in the simple past. This objective was met through a variety of classroom activities, including individual writing assignments in which students conjugated verbs followed by whole class review; elicitations of verbs using visual aids; the whole class/individuals

reading practice sentences aloud; practice dialogues between teacher and students (individuals/whole class), and between pairs of students, in which questions were asked and answers were given in English. The lesson objective and classroom and homework assignments were clearly written on the blackboard and reviewed by the teacher. The students eagerly participated in the class. Most raised their hands, answered questions, and volunteered to read aloud. All exchanges between teacher and students were in English. Both the teacher and the paraprofessionals circulated throughout the classroom helping individual students with their assignments.

The transitional E.S.L. class that was visited was taught by a new, unlicensed teacher. The lesson observed was about how to write a good paragraph. A definition was written on the board and copied by students. Students then proceeded to read from a handout a description of what a paragraph contains, e.g., a topic sentence that develops a controlling idea. This concept was not developed further or explained by the teacher. Students then proceeded to read paragraphs on the handout aloud. The teacher often corrected their pronunciation. Students were then asked to select the topic sentence. The instructions were not always clear to students. Consequently, there was much repetition and reiteration by the teacher. The teacher's questions often produced silence, leaving him to answer them himself. The teacher failed to involve students in the process of reasoning out what makes a good topic sentence in general, so that examples could be more easily identified. All teacher-student interaction was in English. The paraprofessional in

the class basically maintained discipline. Class participation was minimal. According to the project director, the instructor was an inexperienced teacher. He had, however, been responsive to the individual feedback he received from staff regarding his teaching methodology.

Student Achievement in E.S.L.

The CREST was developed by the New York City Public Schools to measure mastery of the syntax skills presented in the E.S.L. curriculum. The CREST uses four items to measure each skill, and mastery is achieved when three of the four items are answered correctly. The test has three levels: beginning (1), intermediate (2), and advanced (3). Levels 1 and 2 each measure mastery of 25 skills; Level 3 measures mastery of 15 skills.

The CREST was administered at the beginning and at the end of each semester. A mastery score was computed for each student by calculating the difference between pretest and posttest results. The number of months of instruction between testings was computed for each student by multiplying the number of months between testings by the student's attendance rate. The number of skills mastered per month was calculated by dividing the mean mastery by the mean number of months of instruction between testings.

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*Extensive information on CREST syntax skills and psychometric properties is in the Technical Manual, New York City English as a Second Language Criterion Referenced English Syntax Test, Board of Education of the City of New York, Division of High Schools, 110 Livingston Street, Brooklyn, New York 11201.

Table 6 presents the test results for students who were pretested and posttested at the same level. Of the 171 students who were reported to be taking E.S.L. classes (Levels 1, 2, and 3), complete data (levels, pretest scores, and posttest scores) were available for 98.8 percent (169 students) in the fall and 99.4 percent (170 students) in the spring.

Examination of Table 6 reveals that program students surpassed the objectives in the fall and the spring terms. In the fall, students mastered an average of 1.7 CREST objectives per month at Levels 1 and 2, and an average of 1.6 CREST objectives per month at these levels in the spring. In both the fall and spring semesters, students who were tested at Level 3 mastered .80 objectives per month of instruction. Thus the proposed objectives were met at all CREST levels.

TABLE 6

Results of the Criterion Referenced English Syntax Test

Test Level	Number of Students	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	Mastery Mean	Mastery S.D.	Mean Mastery Per Month
				FALL				
1	78	8.7	6.3	13.7	6.8	5.0	3.4	1.7
2	51	13.4	5.5	18.9	4.0	5.5	3.2	1.7
3	40	9.5	2.8	12.0	2.2	2.5	1.8	0.8
TOTAL	169	10.3	5.7	14.8	5.9	4.5	3.2	1.5
				SPRING				
1	56	9.5	6.4	13.9	6.1	4.4	2.4	1.6
2	55	14.9	6.4	19.7	4.9	4.8	3.2	1.6
3	59	9.6	3.3	11.8	2.9	2.2	1.6	0.8
TOTAL	170	11.3	6.0	15.1	5.8	3.8	2.7	1.2

•The proposed objectives were met at all test levels in both fall and spring terms.

CONTENT-AREA SUBJECTS

--At least 70 percent of the students will score at or above the 65 percent passing criterion in each of the subject areas (E.S.L., E.S.L. reading, native language arts), each semester.

--Students participating in the program will score at or above the 65 percent passing criterion in bilingual math, science, and social studies at a rate that is equal to or greater than that of non-program students in comparable mainstream classes.

Students in the program received native language instruction not only to fulfill the three-year sequence required for high school graduation, but to increase their fluency in their native language. Students were placed in classes according to their level of oral proficiency. Appendix C lists the native language arts courses offered in the fall and spring.

All Spanish classes were taught according to the New York City Public Schools curriculum. According to the project director, program students who complete the three-year sequence successfully pass the New York State Regents examination.

A member of the evaluation team visited one native language class -- Business Spanish. Business Spanish was an upper level elective offered to native speakers in the foreign languages department. It followed a program-developed curriculum that integrated survival skills (e.g., how to comport oneself in business transactions) with language skills (e.g., appropriate terminology and social behavior for various situations).

The objective of the class was to learn how to plan a trip with a travel agent. Nineteen students were present in a mixed class of native speakers -- students born and raised both within and outside the United States.

Several teaching strategies were incorporated in the presentation of the lesson. First, students were asked to define vocabulary (Spanish)

that pertained to making travel plans. Definitions were elicited in English from students, as well as synonyms for words in Spanish. Through oral and written exercises, students reviewed in Spanish and English the pertinent vocabulary necessary to plan a trip. For each task, a discussion ensued regarding its role in making travel arrangements. Second, students read aloud a dialogue between a traveler and a travel agent in both Spanish and English. This was followed by a written assignment in which students wrote brief statements of their own about travel plans. Finally, the teacher elicited from students the fundamental procedures necessary to make travel arrangements. Travel brochures were passed out for students to examine.

The teacher had an excellent rapport with the students and successfully engaged them in classroom activities. Spanish was used to present the lesson and English was used to evoke explanations of the material. Both Spanish and English were used fluently in the interactions between student and teacher. Although there was no paraprofessional available, the teacher gave students individualized attention when they worked on their written assignments.

The content-area subjects were taught by tax-levy teachers using the native language was the medium of instruction. The more advanced the course, the greater the use of English in class. The curricula used in the content-area bilingual classes paralleled those in the mainstream; both followed the New York State curricula. Appendix D lists the bilingual content-area courses for the fall and spring.

Program staff maintained that some instruction in the native language enabled students to learn more effectively. They were not hindered in their academic development because of a minimal level of English proficiency. Program students, however, were fully integrated with mainstream students in gym, art, music, and shop classes, as well as in schoolwide assemblies.

Mainstreamed students (those who accomplished 80 percent of the CREST instructional objectives, reached the twenty-first percentile of the LAB, and passed the CREST for E.S.L. 5) had the option of remaining in the program with parental consent. Some students chose to stay in the program for certain subjects (e.g., social studies), due to problems with vocabulary. Other mainstreamed students experienced problems reading English literature, but generally managed to do well. The project director followed students' progress by maintaining contact with their grade advisors.

A member of the evaluation team observed one bilingual content-area class, Fundamental Math 1. Fifteen of the 23 students enrolled were present. The lesson that was observed focused on how to calculate the perimeter of geometric figures. Students first were given about fifteen minutes to solve problems which were on the board. During that period, the teacher and the paraprofessional assisted individual students with the assignment. Students were then asked to come to the board and share solutions with the class. In examining these problems aloud with the students, the teacher reviewed not only the specific solutions to problems, but also the procedures and formulas involved in ascertaining

the circumference (which had been taught in prior lessons). Next, the concept of a perimeter was introduced. A definition of perimeter was written on the board. Students were then asked to ascertain the perimeter of a fence drawn on the board. Students responded aloud and on the board with a solution. The mathematics involved were explained thoroughly. Students then solved another set of problems individually at their desks and as a group on the board. Students were very responsive and actively participated in the class. The teacher had a good relationship with students and was particularly sensitive to the different mathematical approaches they brought with them from other countries. Approximately one-third of class time was spent on assignments, another third on lecture and explanation, and the final third on eliciting student response, solutions, and participation. Spanish was the language of instruction and of student-teacher communication in the class. The paraprofessional was very good in giving students added attention and help without interrupting the lesson.

Student Achievement in Content-Area Subjects

Table 7 presents the passing rates for program students in native language arts, E.S.L., and E.S.L. reading classes each semester. A weighted average for the year was also computed.

Examination of Table 7 reveals that the objective was met for native language arts in both semesters and for E.S.L. reading in the spring semester. Although achievement was high in E.S.L. and E.S.L. reading in both semesters, the passing criterion set in the objective was not met. The objectives were thus partly met.

Table 8 presents the passing rates for program and mainstream students in mathematics, science, and social studies courses each semester. Statistical significance of the difference between program and mainstream passing rates was determined through a z-test for the significance of difference between two proportions.* This procedure tests whether the difference in the rates of two independent groups is greater than can be expected by chance variation.

Examination of Table 8 reveals that there was no significant difference between program and mainstream students' achievement in mathematics in both semesters, and in science in the spring. Program students achieved significantly lower ($p. < 05$) passing rates than mainstream students in science in the fall, and in social studies in both semesters. Accordingly, the objective was only partially met.

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*Bruning, J.L. and Kintz, B.L.; Computational Handbook of Statistics; Scott, Foresman and Company, 1968.

TABLE 7

Passing Rates in E.S.L., E.S.L. Reading, and Native Language Arts

Course	Fall		Spring		Total Overall Passing Rate
	Number of Students	Percent Passing	Number of Students	Percent Passing	
E.S.L.	177	65.0	199	66.3	65.6
E.S.L. Reading	144	66.0	147	70.7	68.3
Native Language Arts	152	78.3	124	79.0	78.6

- The objective was met in the fall and spring semesters for native language arts, and for the spring semester in E.S.L. reading.
- Passing rates increased from fall to spring in all areas.

TABLE 8

Passing Rates for Program and Mainstream Students in Content-Area Subjects

Course	Bilingual Program		Mainstream Classes		
	Number of Students	Percent Passing	Number of Students	Percent Passing	z
		Fall			
Mathematics	133	56.4	290	48.6	1.49
Science	126	42.1	182	54.4	-2.12*
Social Studies	169	45.0	187	55.6	-2.00*
		Spring			
Mathematics	177	50.8	369	44.4	1.40
Science	113	46.9	261	47.9	-0.18
Social Studies	166	41.6	377	52.8	-2.40*

*Statistically significant at the .05 level.

COMPUTER-ASSISTED INSTRUCTION

-- By the end of the first project year, at least one subject-matter oriented computer instructional unit will have been developed or identified by the resource teacher in each of the following areas: E.S.L., native language arts, bilingual math, science, and social studies.

-- As a result of participating in the bilingual computer math class, students will show significant gains in computer literacy.

Title VII funds were allocated to support instruction in computer literacy and computer-assisted instruction for CIBE participants. The implementation of the project, in its first year of funding, was hampered by the changes in personnel (project director and resource teacher) discussed earlier, which limited the number of computer instructional units that could be developed. Also, problems in purchasing hardware and software limited the amount of available equipment and resources available for computer-assisted instruction.

Computer Instruction and Use

The project director visited each E.S.L. class twice in the spring to instruct students in the use of available PET Commodore computers. With the assistance of paraprofessionals, the director presented the lessons and reviewed them. This was followed by a practice lesson, with two students working at each computer. The appropriate level of instructional materials was selected for each class and vocabulary of instruction was reviewed before students proceeded to do the practice lesson on the computer. Two E.S.L. 1 classes have yet to receive this instruction but will do so by the end of the term. The project director will select an appropriate instructional lesson and do all the necessary translation of instructional material for the practice lesson.

Bilingual students also used the computers in the math lab. Many completed daily assignments which necessitated the use of the computer. Five complete units, IBM PC terminals and printers, are due to arrive in May and will be available for bilingual classroom use in the fall. The units will be placed on rollers and will be available for individualized computer-assisted instruction in these classes. In addition, teachers will have available to them a full computer lab (currently under construction), with four rooms of IBM PCs for large group or whole class instruction.

Curriculum Development

In order to review and evaluate software, and to translate software instructions from English to Spanish, the project director requested that the resource teacher line be converted to a per session line so that she could accomplish this over the summer with the assistance of the office aide, two program teachers, and the A.P.

In addition, permission was requested to translate the current mainstream curriculum for computer literacy into Spanish. Although final word had not yet arrived (during the evaluation visit to the site), the project director expected that the Office of Bilingual Education in the Education Department would approve the request. This bilingual computer literacy course will be offered in the fall as a math elective.

According to the A.P. and the project director, plans are in place for staff to work this summer on evaluating software, translating instructions, and developing adapted curricular materials for classroom

use. Instructional guides to the available software will be created for teachers. Specific programs were purchased that would enable teachers to create materials. Software used by mainstream students will also be made available to students in the bilingual program.

Purchasing Equipment and Software

The project director and A.P. were involved this year in all aspects of ordering and purchasing equipment. After a series of bureaucratic setbacks, five IBM PC's were expected to arrive in late May 1985:

Sept. - Oct.	Monies made available for purchase of equipment.
Nov.	A.P. went to a meeting with vendors and selected the IBM PC for project use.
Dec. - Jan.	City negotiated contract with IBM.
Mar.	Project director ordered five IBM PCs.
May 17	Project director expected shipment from IBM.

Budget modifications were made for the purchase of software, which was ordered throughout the year. There were recurrent problems, however, with orders placed with the Board of Education. For example, an order for software which cost $10.00 was returned to the project director because it was under the $50.00 requirement necessary for placing an order. To get the order placed, it was necessary to order five items, rather than the one requested. In addition, the project director was asked to send a copy of the software with the request, an impossible, if not an illegal, request. Consequently, purchase orders continued to be returned and had to be re-submitted, resulting in further delays.

Student Achievement in Computer Literary

Since the bilingual computer class was not offered in 1984-85, there were no data available to evaluate this objective.

STAFF TRAINING

-- All staff members will be trained in educational aspects related to E.S.L., bilingual education, native language arts, and computer education through attendance at workshops, seminars, conferences, and courses at institutions of higher education.

Teachers in the program had the opportunity to take college courses related to bilingual education, E.S.L., and computer education. Since all the teachers in the program are experienced and/or have taken courses in these areas, staff training focused mainly on on-site workshops and conferences, and participation in staff development workshops organized by the Board of Education. See Appendix E for staff development activities during 1984-85.

PARENTAL INVOLVEMENT

-- The Bilingual Parent Advisory Committee will hold at least two meetings per year.

Two meetings (fall and spring) were held with parents to discuss the goals of the CIBE project. The program is still having problems getting parents to attend meetings, however. They do not hesitate to come to the school individually when they have particular concerns, or are called in by the bilingual dean to discuss their children's disciplinary problems.

An effort is being made to provide child-care facilities locally for parents (so they can attend meetings) and students (so they can attend school). The school principal is actively engaged in this project in

conjunction with other local schools and agencies, including Hunts Point Multi-Service, Community School District 7, Lincoln High School, Bronx Frontier, and Teen Parenting.

A parent newsletter that informs parents of past and future activities in the program, and that also includes student compositions, has been written but not yet distributed. A final printed copy of the newsletter was requested by the community school board before approval would be given for publication. A xeroxed copy of the original typed manuscript was sent so that printing could be computed before the end of the school term.

ATTENDANCE

Because both program and mainstream attendance data were available, a comparison was made for illustrative purposes. Since the school's attendance rate includes the attendance of program students, the statistical significance of the difference between program attendance and school attendance was determined through the application of a z-test for the significance of a proportion.* This procedure tests whether the difference between one proportion (the program's attendance) and a standard proportion (the school's attendance) is greater than what can be expected by chance variation.

The attendance rate for program students was 87.04 percent, approximately 20 percentage points above the schoolwide attendance rate (66.95 percent). The z-test results ($z = 6.12$) indicated that the difference in attendance rates is statistically significant ($p. < .01$).

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*Bruning, J.L. and Kintz, B.L.; Computational Handbook of Statistics; Scott, Foresman and Company, 1968.

IV. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The Computers in Bilingual Education program at South Bronx High School completed its first year of operation in June 1985. The program offered LEP students computer-assisted instruction in E.S.L., native language arts, social studies, math, and science, and also provided instruction in computer literacy. Despite setbacks in program implementation due to personnel turnover and problems in purchasing computer hardware and software, the program made progress toward achieving its objectives.

Students who participated in the program received seven periods of academic instruction in E.S.L., native language arts, and bilingual content areas that paralleled the mainstream curriculum. Efforts were made to integrate computer-assisted instruction within the academic program, principally within the E.S.L. classes and the math lab.

Five IBM PC terminals and printers (expected to arrive before the end of this term) will be available to the bilingual classes for individualized computer-assisted instruction in the fall 1985. Program staff and students will also have access to the school's new computer lab for classroomwide instruction.

During the summer of 1985, program staff will evaluate software, translate instructions, and develop curricular materials for classroom use. In addition, the mainstream curriculum for computer literacy will be translated into Spanish. The Bilingual Computer Literacy course will be offered in the fall as a math elective.

Although the program is still having problems getting parents to attend meetings, parents do visit the school regularly on an individual basis. Efforts are being made to provide childcare to parents and students so that they can become more involved with the school. A parent newsletter informing them about the program was prepared and is expected to be disseminated before the end of the term.

Despite setbacks, the program has provided students with some exposure to computer use while maintaining a stable, coherent, and consistent academic program. The factors that contributed to this were:

1) an experienced staff committed to academic excellence in both Spanish and English;

2) the ability of the program to build on curriculum developed in previous Title VII projects and to provide continuity between the bilingual and the mainstream curriculum;

3) program organization under the A.P. for supervision which prevented separation or segregation from other academic departments;

4) open lines of communication and mutual support between administration and program staff;

5) the availability of the administration and program staff to students and parents; and

6) an underlying philosophy of mutual respect and academic excellence that was shared among administration, faculty, staff, and students.

RECOMMENDATIONS

On the basis of several site visits, classroom observations, and

interviews with program personnel, the evaluation team makes these recommendations:

1) In an effort to increase parental participation, the school might undertake a survey of parents to find out what keeps them from attending school and program events. For example, what times would be most convenient for meetings? What factors contribute to their not being able to attend? In what kinds of activities would they like to participate? How do they see their role as parents of children in high school? How can the school and parents work together to help students?

2) The program may minimize delays in printing materials, such as the parent newsletter and program developed social studies curriculum, by using the IBM PC.

3) The grade advisor might help students organize a club focusing on such cultural activities as plays, dances, fundraisers, visits to cultural institutions, and the publication of a bilingual newsletter.

4) A list of program-developed curricular materials and software in E.S.L., social studies, Spanish, math, and science, prepared under Title VII should be compiled and made available to other programs serving similar student populations.

V. APPENDICES

APPENDIX A

STAFF CHARACTERISTICS

Title/Function Note: Please do not include names	Percent Time in Each Function	Education (Degrees)	Is person licensed or certified for this title/function? (Y/N/NA)	Total Yrs. Experience Education	Years Relevant Experience Bilingual/E.S.L./ Foreign Language
ESL Teacher	1.0	BA-Social Studies MA-Hebrew	Yes	22	7
ESL Teacher	1.0	BA-French	No	5	2
ESL Teacher	1.0	BA-Social Studies	No	1	1
ESL Teacher	1.0	BA-German MA-ESL	Yes	1	1
ESL/Spanish Teacher	.8/.2	BA-Sociology, Anthropology	No	½	½
Spanish Teacher	.8	BA-Spanish MA-Spanish	Yes	15	15
Spanish Teacher	1.0	BA-Spanish	Yes	5	1
Spanish Teacher/ ~~Bilingual Grade Advisor~~	.6/.4	BS-Education ~~MA--Bil. Ed.~~	Yes	7	6
Bil. Science Teacher	.8	BS-Science	Yes	6	4
Bil. Math Teacher	1.0	BS-Math	Yes	2	1½

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APPENDIX B

CLASSES IN ENGLISH AS A SECOND LANGUAGE (FALL AND SPRING)

Course Title & Level (Do not use school codes)	No. of Classes	No. Taught Out of License	No. of Classes with Para.	Total Register	Title VII Register	Periods Per Day	Course Description	Curric.*
ESL 1	2	0	1	57	56	2	ESL Structure Term 1	P,S
ESL 2	2	2	2	43	43	2	ESL Structure Term 2	P,S
ESL 3	2	0	2	39	36	2	ESL Structure Term 3	P,S
ESL 4	1	1	0	17	16	2	ESL Structure Term 4	P,S
ESL 5	1	0	0	17	16	1	ESL Structure Term 5	P,S
ESL Reading 1	2	1	2	57	56	1	ESL Reading Term 1	P
ESL Reading 2	2	0	0	43	43	1	ESL Reading Term 2	P
ESL Reading 3	1	1	0	39	36	1	ESl Reading Term 3	P
ESL Reading 4	1	0	0	17	16	1	ESL Reading Term 4	P
ESL Reading 5	1	1	1	15	14	1	ESL Reading 5	P
Transitional ESL (LEDF)	2	0	1	43	35	1	ESL for Eng. Dominant & Transitional Students	P

*Curriculum codes: C = NYC Curriculum; T = Textbook Curriculum; O = Other Curriculum; S = NYS Curriculum; P = Program-developed Curriculum

The Curricula in use were developed in accordance with the Bronx Superintendent's guidelines.

APPENDIX B (CONTINUED)

Course Title & Level (Do not use school codes)	No. of Classes	No. Taught Out of License	No. of Classes with Para.	Total Register	Title VII Register	Periods Per Day	Course Description	Curric.*
ESL 1	2	2	2	25	25	2		
ESL 2	2	2	2	34	33	2		
ESL 3	2	0	0	33	33	2	Same as	Same
ESL 4	1	0	0	31	28	2	Table	as
ESL 5	1	1	1	18	18	1		Table
ESL Reading 1	1	0	1	25	25	1		
ESL Reading 2	2	2	0	34	33	1		
ESL Reading 3	2	2	1	33	33	1		
ESL Reading 4	1	0	1	31	28	1		
ESL Reading 5	1	1	1	18	18	1		
Transitional ESL (LEDS)	2	0	1	48	40	1		

*Curriculum codes: C = NYC Curriculum T = Textbook Curriculum O = Other Curriculum
S = NYS Curriculum P = Program-developed Curriculum

APPENDIX B (CONTINUED)

SOUTH BRONX HIGH SCHOOL

PROJECT CIBE

Course Title & Level	Texts/Materials in Use
ESL 1	Pathways to English 1
ESL 2	Pathways to English 2
ESL 3	English for a Changing World-Book 3
ESL 4	English for a Changing World-Book 4 Graded Exercises in English
ESL 5	The English Notebook Graded Exercises in English Writing Power
ESL Reading 1	Line by Line The Sheriff The Fight for Franklin Street The Loch Ness Monster
ESL Reading 2	No Hot Water Tonight Elementary Composition Practice 1
ESL Reading 3	Whales Can Sing Elementary Composition Practice 2
ESL Reading 4	Easy Reading Selections in English It's Up To You
ESL Reading 5	The Pearl Benjamin Franklin Whatever Happened to Sandy Fowler
Transitional ESL	Building Real Life English Skills Writing Power Life Plan

APPENDIX C

CLASSES IN NATIVE LANGUAGE ARTS (FALL AND SPRING)

Course Title & Level (Do not use school codes)	No. of Classes	No. Taught Out of License	No. of Classes with Para.	Total Register	Title VII Register	Periods Per Day	Course Description	Curric.*
Spanish 1	3	2	0	123	5	1	Spanish Term 1	C
Spanish 3	1	0	0	38	10	1	Spanish Term 3	C
Spanish 3X	4	0	0	109	105	1	Spanish Term 3 (Native Speakers)	C
Spanish 5	2	0	0	49	12	1	Spanish Term 5	C
Spanish 5X	1	0	0	24	17	1	Spanish Term 5 (Native Speakers)	C
Spanish 7	2	0	0	36	24	1	Spanish Term 7	C
Business Spanish 1	2	0	0	60	45	1	Business Spanish 1 for Native Speakers	P
Spanish 2	3	0	0	83	6	1	Spanish Term 2	C
Spanish 4	1	0	0	20	3	1	Spanish Term 4	C
Spanish 4X	2	1	1	64	61	1	Spanish Term 4 (Native Speakers)	C
Spanish 6	2	0	0	32	5	1	Spanish Term 6	C
Spanish 6X	1	0	0	23	12	1	Spanish Term 6 (Native Speakers)	C
Spanish 8	1	0	0	17	5	1	Spanish Term 8	C
Business Spanish 2	2	0	0	52	39	1	Business Spanish Level 2 For Native Speakers	P

*Curriculum codes: C = NYC Curriculum T = Textbook Curriculum O = Other Curriculum
S = NYS Curriculum P = Program-developed Curriculum

APPENDIX C (CONTINUED)

SOUTH BRONX HIGH SCHOOL

PROJECT CIBE

Course Title & Level	Texts/Materials in Use
Spanish 1 & 2	Primer Libro Aventuras en la Ciudad
Spanish 3 & 4	Segundo Libro Leyendas Latinoamericanas
Spanish 3X & 4X	Same as Spanish 3 & 4
Spanish 5 & 6	Workbook in Spanish-3 Years Galería Hispanica Español A Sentirlo
Spanish 5X & 6X	Same as Spanish 5 & 6
Spanish 7 & 8	Antología De Cuentos Puertoriqueños Español A Sentirlo
Business Spanish 1 & 2	Manual de Referencias Personal Business Dictionary

APPENDIX D

CLASSES IN CONTENT-AREA SUBJECTS (FALL AND SPRING)

Course Title & Level (Do not use school codes)	No. of Classes	No. Taught Out of License	No. of Classes with Para.	Total Register	Title VII Register	Percent of Eng. Used	Course Description	Curric.*
Global History 1	3	0	3	120	120	0	Global History-Term 1 Taught in Spanish	C,S
Global History 3	1	0	1	37	33	0	Global History Term 3 Taught in Spanish	C,S
American Studies 2	1	0	2	31	20	30%	American History-Term2 In Span. (Some Eng.)	C,S
Fund. Math 1	1	0	1	35	35	0	Math Fundamentals Spanish	C,S
Fund. Math 2	1	0	0	39	39	0	" " "	C,S
Fund. Math 3	1	1	1	39	39	0	" " "	C,S
Algebra 1	1	0	0	14	13	0	Beginning Algebra Taught in Spanish	C,S
Gen. Science 1	3	0	2	115	111	0	General Science Taught in Spanish	C
Biology 1	1	0	1	26	22	20	Beginning Biology- In Span. (Some Eng.)	C,S

*Curriculum codes: C = NYC Curriculum T = Textbook Curriculum O = Other Curriculum
S = NYS Curriculum P = Program-developed Curriculum

APPENDIX D (CONTINUED)

Course Title & Level (Do not use school codes)	No. of Classes	No. Taught Out of License	No. of Classes with Para.	Total Register	Title VII Register	Percent of Eng. Used	Course Description	Curric.*
Global History 2	3	0	2	92	92	0	Global History-Term 2-Taught in Spanish	C,S
American Studies 1	1	0	1	32	32	25%	American History-Term 1 Mostly in Spanish	C,S
Consumer Economics	1	0	1	18	14	40%	Economics Span/Eng.	C,S
Fund. Math 1	3	0	2	79	79	0	Math Fundamentals-Term 1 Spanish	C,S
Fund. Math 2	1	0	1	27	27	0	" " Term 2	C,S
Fund. Math 3	1	1	1	16	16	0	" " Term 3	C,S
Algebra 2	1	0	0	15	15	0	Algebra-Term 2-Spanish	C,S
Gen. Science 2	3	0	2	85	85	0	Gen. Science-Term 2 Spanish	C
Biology 2	1	0	1	17	15	20%	Biology-Term 2-Spanish	C,S

*Curriculum codes: C = NYC Curriculum T = Textbook Curriculum O = Other Curriculum
S = NYS Curriculum P = Program-developed Curriculum

APPENDIX D (CONTINUED)

SOUTH BRONX HIGH SCHOOL

PROJECT CIBE

Course Title & Level	Texts/Materials in Use
Global History 1	Historia de la Humanidad
Global History 2	" "
American Studies 2	Historia del Pueblo de los Estados Unidos
Fund. Math 1	Preliminary Mathematics
Fund. Math 2	" "
Fund. Math 3	" "
Algebra 1	Intergrated Mathematics
Gen. Science 1	Introducción a las Ciencias Química
Biology 1	Biología
Consumer Economics	Economía Para Todos

APPENDIX E

STAFF DEVELOPMENT ACTIVITIES

Strategy	Description(s), Goals, or Titles	Staff Attending		Speaker or Presenter	Frequency or Number of Sessions
		No.	Title(s)		
Dept. Meetings	Monthly department meet-		All teachers in	E. Mejia, Assistant Principal	Monthly
	ings which include		the department.		
	professional topics.				
Other: demonstration lessons, lectures, etc.	Demonstration lessons	6	ESL teachers,	E. Mejia	Varied
	and on-going individual		native language	S. Fallick	
	assistance were provided		arts teachers	M. Menendez	
	to teachers in the program			R. Armillas	